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ABSTRACT

Field trips are a regular part of many programs for young children. Field trips can serve a variety of purposes, such as exposing children to new things or helping children to see familiar things in new ways. The purpose of this study was to learn the meaning children gave to a field trip. Cameras were made available to each of the children in a group of 3- to 12-year-olds (n=21) from a campus child care center. It was suggested to them that they take pictures during the field trip to show other children, who were unable to go on the trip, what the zoo was like. Trips to the zoo were not a regular part of the center's program. The results revealed that over 80% of 6- to 12-year-olds' photographs contained animals. Older children noticed and learned new features of familiar animals and about new, unfamiliar animals. Only the 10- to 12-year-olds indicated that they understood abstract concepts such as the need to preserve animals. On the other hand, with one exception, only 56% of the preschool children's photographs contained animals, and the students photographed only familiar animals, including chipmunks. They photographed action (e.g., swimming, petting). Young children also photographed the clouds, ground, and other items not uniquely associated with the zoo. The results were interpreted in light of Farrar and Goodman's Schema-Conformation Deployment Model. Preschool children seem to need more than one exposure to unfamiliar phenomena to notice and to remember them. (Contains 18 references.) (Author/HTH)

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A Trip to the Zoo: Children's Words and Photographs

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Abstract

Field trips are a regular part of many programs for young children. Field trips can serve a variety of purposes, such as exposing children to new things or helping children to see familiar things in new ways. The purpose of this study was to learn the meaning children gave to a field trip. Cameras were made available to each of the children in a group of 3- to 12-year-olds (n = 21) from a campus child care center. It was suggested to them that they take pictures during the field trip to show other children, who were unable to go on the trip, what the zoo was like. Trips to the zoo were not a regular part of the center's program. The results revealed that over 80% of 6- to 12-year-olds' photographs contained animals. Older children noticed and learned new features of familiar animals and about new, unfamiliar animals. Only the 10- to 12-year-olds indicated that they understood abstract concepts such as the need to preserve animals. On the other hand, with one exception, only 56% of the preschool children's photographs contained animals, and they photographed only familiar animals, including chipmunks. They photographed action (e.g., swimming, petting). Young children also photographed the clouds, ground, and other items not uniquely associated with the zoo. The results were interpreted in light of Farrar and Goodman's Schema-Conformation Deployment Model. Preschool children seem to need more than one exposure to unfamiliar phenomena to notice and to remember them.

Introduction

Field trips are a regular feature of many preschool and school-age child care programs. A field trip can be as simple as a walk around the block, or it can be as complicated as a bus trip to a distant place. Children may be asked to look at what they normally see with new eyes, or they may have the opportunity to see things to which they have not been previously exposed. Ideas about the purposes of taking field trips are as varied as the types of early childhood programs that exist.

Our child care center was located within an academic building of a small, liberal arts college situated in rural, east central Ohio. The summer child care program featured weekly field trips tied to thematic units. Sometimes children visited a neighborhood

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business, the fire station, or another place within walking distance of the center. Sometimes the places visited required a long drive to make it possible for the children to see things not usually seen in their everyday environment; these required a full-day trip. We wondered what our children thought was important about those field trips and whether the time, expense, and anxiety we felt when taking the long trips were worth it. The center maintained a 1:3 adult/child ratio for these long excursions, thus incurring substantial costs. Fears mounted as we heard of children being abducted from large city places. So one question underlying this research was whether all the stress involved in taking these field trips was offset by their educational benefits to children.

Some early childhood programs, especially those for children identified as "at-risk," view their mission as one of exposing children to things that are not typically a part of their everyday environment. Other programs such as those in Reggio Emilia, Italy, encourage children to focus on topics that are of interest to them (see Edwards, Gandini, & Forman, 1998). Loris Malaguzzi (1998) said, "the teachers need only to observe and listen to the children, as they continuously suggest to us what interests them, and what they would like to explore in a deeper way" (p. 90). According to Katz and Chard (1994), it is important for young children to be "engaged in ways that deepen their understanding of their own experiences and environment" (p. 4). They further state that "a major aim of education is to improve the learners' understanding of the world around them and to strengthen their dispositions to go on learning" (p. 5). If children take a field trip to an unfamiliar place, will they notice and remember what was there?

How can we discover what young children think is important about a field trip? We can ask them. However, young children are not as skilled as older children in using words to communicate what they think (Miller, 1993). Verbal reports may or may not accurately reflect children's event knowledge (Hudson, Fivush, & Kuebli, 1992; Nelson, 1997). One approach to the question seemed to be to record the events of a field trip through the eyes of children. During the process, we also learned an important lesson about elements of a field trip that captured 3- to 12-year-old children's attention and interest.

We gave the children cameras with instructions to take pictures so other children would know what the trip was like. Judy DeLoache's research (DeLoache & Marzolf, 1992; Troseth & DeLoache, 1998) supports the premise that by 2-1/2 years of age, children understand the symbol referent nature of photographs. Therefore, it can be assumed that even preschool children would understand that their photographs represented the actual place—in this case, the zoo.

The Study: A Field Trip to the Zoo

During the week of July 4, the children who were enrolled in our center went on a field trip to the Columbus Zoo. Because it took more than 1-1/2 hours to get to the zoo from the center, we left the center by 8:00 a.m. and returned at approximately 5:30 p.m. Because the children lived in a rural area and did not go to the zoo regularly, with their parents' assistance it was possible to quantify exactly how many times each child had been to the zoo. All 21 children who went on this trip had been to the zoo at least one time before this particular trip, but only 5 of them had been to the zoo more than seven times.

The week of the zoo trip, the teachers talked about the zoo with their classes, and they showed the children pictures of the animals they would be seeing. Activities for the preschool children focused on the different zoo animals. This type of thematic unit was typical of the curriculum that was offered for our children.

Approximately half of the 49 children who were enrolled in the summer program during the month of July were scheduled to go on the field trip to the zoo; the other half were not scheduled to attend the center that particular week. On the basis of age and previous zoo experience, a group of children who did not go to the zoo was matched as closely as possible to the group who went to the zoo. Illnesses and other last-minute trip cancellations changed the one-to-one matching. However, the differences between the two groups ($n = 21$ and $n = 28$) in mean age and mean number of previous trips to the zoo were not significantly different. The staff also did not think the groups differed with respect to family characteristics such as socioeconomic status or other demographic factors.

The week before and the week following the field trip, all 49 children were interviewed about what usually happens when they go to the zoo. (Appendix A contains the actual interview questions.) Thus, there was a type of control group for the verbal measures collected in the study. Furthermore, analyses could be computed with age and experience as independent continuous variables.

The results of children's verbal descriptions of the zoo (i.e., scripts; see Nelson, 1986) are reported elsewhere (DeMarie, Norman, & Abshier, 2000). These results included all 49 children. Briefly, either children's age or previous experience at the zoo (each controlling for one another in multiple regression analyses) predicted their use of general (i.e., "we" or "you") as opposed to first person (i.e., "I") pronouns and the use of present as opposed to past tense. For example, as expected on the basis of previous research, they said, "You see lions" rather than "I saw a lion" (see Kuebli & Fivush, 1994). Only the number of previous visits to the zoo by the child (experience) predicted the quantity of information the child stated, as measured by the number of propositions he/she said. The number of times children had been to the zoo was significantly correlated ($r = .60$, $p < .001$) with how much they said about the zoo during their interview. Only children's age predicted the number of animals they mentioned when they were asked to name as many zoo animals as possible (and all of the animals children mentioned during the entire interview were counted). However, both age and experience jointly influenced (i.e., there was a significant interaction between age and experience) the complexity of the language children used, as measured by the number of optionals (either X or Y) and conditionals (if X, then Y) they stated. These results revealed that age and experience affect different measures of children's verbal reports.

Although the number of previous trips to the zoo was significantly correlated with the number of books children owned about the zoo ($r = .30$, $p < .05$), and the parents' estimates of their children's knowledge about the zoo ($r = .51$, $p < .001$), it was not significantly correlated with parents' ratings of children's interest in the zoo ($r = .11$, $p > .10$). In other words, the more times children had been to the zoo, the more books they owned about the zoo and the more knowledgeable their parents thought they were about the zoo. Yet, neither how many times they had been to the zoo nor the number of books they owned related to parents' estimates of children's interest in the zoo. Perhaps parents take their children to the zoo for reasons other than whether they think their child is

"extremely interested" in it.

Children who went to the zoo during our field trip ($n = 21$) did not differ significantly on any verbal measure from children who did not go to the zoo ($n = 28$). It was surprising that children who went to the zoo did not mention significantly more animals after going to the zoo than they had before going to the zoo. In addition, the number of animals these children mentioned did not differ significantly from the children who had not gone to the zoo. The only significant predictor of how many animals children mentioned was the age of the child. Experience was not a significant predictor controlling for age.

This article focuses on the nature of the photographs taken by children who went to the zoo and what they said about them. These results of the study may be useful to early childhood professionals when deciding which field trips to take with children of different ages. Fortunately, presentation of the study in an online journal makes it possible to view the children's photographs.

Method

Participants

Every parent who was contacted gave his or her child permission to participate in the study. Unless otherwise noted, the statistics that follow in this section are summarized for all 49 children.

Questionnaires (see Appendix B) were sent to parents asking about their children's previous experience, knowledge, and interest in the zoo. The means (and standard deviations) that follow summarize parents' answers to some of these questions. Children had been to the zoo 4.82 times (SD = 3.82). The five children who had been to the zoo more than seven times had all moved to the area from a larger city. Nearly 30% of the children had been to the zoo two or three times, 19% of them had been to the zoo five times, and 17% of them had been to the zoo only once. There was a moderate correlation ($r = .34$, $p < .05$) between age and the number of previous zoo trips for our 3- to 12-year-olds, and some younger children had been to the zoo more times than many older children. The majority of children (62%) visited the zoo for the first time before the age of 3 (M = 2.42 years at the time of the first visit, SD = 1.41).

Parents reported that children owned 3.86 books about the zoo (SD = 3.43), and parents estimated they read 8.25 books about the zoo to their child (SD = 7.01). Only one child's parents said he was "somewhat interested" in the zoo. The rest claimed children were "very" or "extremely" interested in it.

Parents also responded to questions about their child's previous experience with cameras and how frequently their family took and reviewed photographs. Appendix C contains a copy of this questionnaire. Every child's parent reported that family photographs were shared with the children often or quite often. All but one of the children's parents reported that their child had taken photographs with the family's camera, and nearly 50% of the children owned their own cameras.

The classification of the groups for the analysis of photographs was as follows:

preschool: ages 3 to 5 and not yet in kindergarten (n = 6); early primary: kindergarten to second grade or ages 6 to 8 (n = 8); late primary/early middle school: third to sixth grade or ages 9 to 12 (n = 7).

Materials

A grant from the Ohio Association for the Education of Young Children made possible the purchase of 24 pocket Instamatic cameras, pouches that fastened around children's waists, a 24-exposure roll of film for each child, cassette tapes and videotapes for recording the day's events, and film development. Each teacher carried a cassette tape recorder in a pouch so conversations with children could be recorded during the field trip. The interviews of the children were also tape recorded and were later transcribed.

Procedure

One week before and/or one week following the field trip, all 49 children were interviewed individually about what happens when they go to the zoo. Before leaving the center on the day of the zoo trip, all children were taught how to hold the camera and how to take a photograph. For practice, children were asked to take a picture of their favorite person in the room. Then the cameras and pouches were collected for the long van ride to the zoo.

When the children received their cameras and pouches at the zoo, they were informed that "many children weren't able to come to the zoo with us" and that we wanted them to take photographs "so these other children will know what the zoo is like." The whole group of children and adults from the center stayed together throughout the entire field trip. Although remaining as a group, each adult was responsible for two to four children, depending on the children's ages and tendency to wander.

Following their post-zoo interview the week after the field trip, the children who went to the zoo with the center were interviewed about the photographs they took at the zoo and why each of them was taken. They were asked questions such as, "What was the most important thing you learned about the zoo?" and other questions about their experiences (see Appendix D).

A Columbus Zoo expert determined which photographs contained animals and which did not. His familiarity with the zoo exhibits enabled him to locate animals in photographs that others had missed. The percentage of a child's photographs that contained animals was calculated for each child.

Results and Discussion

The results reported below are based on data collected from the 21 children who went to the zoo. First, the person whom the children photographed when they were all taught how to use the camera is reported. Then, the photographs children took at the zoo are analyzed. A summary and some representative photographs from the 9- to 12-year-olds are provided first, because their photographs were similar to ones adults would have

taken of the zoo. Next, the words and photographs of the 6- to 8-year-old children are analyzed. Although they did not mention abstract concepts such as "preservation of animals," as was true for the 9- to 12-year-olds, most of the 6- to 8-year-olds' photographs contained animals. They took many pictures that showed unusual examples of animals they knew or new animals about which they learned something. Finally, some representative photographs and words from the 3- to 5-year-old children are shared. What the preschool children photographed had little to do with the main theme of the field trip, namely, visiting animals at the zoo. What they chose to photograph at the zoo was not much different from what they could have photographed at a local farm or a walk around the block. When photographing an animal, they focused on the common, familiar ones. Finally, the children's answers to the question "What was the most important thing you learned at the zoo?" are discussed.

Favorite Person in the Room

When children were asked to take a photograph of their favorite person in the room before leaving the center, it was interesting that all the preschool children (ages 3 to 5) took a photograph of their lead teacher. The early primary (ages 6 to 8) and 9-year-old children took photographs of any one of their three teachers (one lead teacher/two assistants), the director of the center, or a research assistant. All of the 10- to 12-year-olds took photographs of a peer. The most surprising finding was that no child took a picture of a parent. Was it because children saw other children taking pictures of teachers, or was it because the teacher is the most important person in the context of an institutional child care center? When later asked why they had taken that particular picture, even the preschool children said that they were taking a picture of their favorite person in the room. Many of those same children did not later give reasons for taking any of the other photographs they took at the zoo.

Photographs and Words of Children Who Were 9 to 12 Years Old

More than 86% (range = 80% to 94%) of the oldest children's photographs contained animals. Their pictures looked like those an adult might have taken. For example, the photograph of zebras and giraffes in Figure 1 was taken by the oldest girl in the group, who was 12 years, 11 months old. She had been to the zoo eight times before this trip.

Figure 1. Photograph of zebras and giraffes by 12-year-old.

When asked why she took this picture, she said, "Because I like 'em. . . and it was a neat picture because I got both of the giraffes and both of the zebras."

Some of the oldest children's photographs contained friends. For example, a girl who was 10 years, 1 month old and had been to the zoo four previous times explained that she took a photograph of her friends petting a goat because they were "begging me to take a photograph of them petting the goats."

The oldest children took the role of the other children who would be looking at their photographs and often teamed up to get a greater number of different photographs. They said they tried to take photographs of animals they knew others liked. A boy age 11 years, 7 months said he teamed up with his sister, who was 9 years, 5 months old. Both had been to the zoo three times before this trip. The boy said, "Me and my sister were working together." They tried to have photographs of as many different animals as possible. Whenever one took a photograph of an animal, the other one would not. Teaming up and collaboration were prevalent within the oldest group of children.

The oldest children also related the new information they learned to information they already knew from previous trips to the zoo, books they read, or information they learned at school. For example, when the boy who took this photograph of a bald eagle (see Figure 2) was asked about the photograph and why he had taken it, he said, "I think that's where I tried to get the bald eagle, and I got that because I thought I'd try to get a picture of our national bird."

Figure 2. Photograph of a bald eagle by 11-year-old.

A girl who was 9 years, 6 months old and had been to the zoo three times said that she had taken a picture of an elephant because, "in third grade we were studying elephants, because each classroom had an endangered animal that they had to study." When asked about her picture of the giraffe, that same girl said, "I like their tongues and how they're so long. I read a book once that said their tongue's a foot long."

The oldest children remembered the names of new animals and often reported facts about those animals. For example, a girl who was 11 years, 1 month old took a photograph of red pandas (see Figure 3). She also had been to the zoo on three previous occasions. She said, "This is a Chinese Panda. They kind of look like raccoons, and I thought they are unusual."

Figure 3. Photograph of red pandas by 11-year-old.

Older children also talked about preserving animals. For example, the boy age 11 years, 7 months said, "I think it's very important to save endangered animals because we could lose them forever, and it could really destroy the food chain."

To summarize, the oldest children retained a lot of new information about the zoo. Perhaps that was because they tried to relate the new information to what they already knew. Elaboration of new information with what someone already knows is an excellent memory strategy (see Kail, 1990). They collaborated with one another to take a greater number of different photographs and did some role taking of what another child would like to see or to learn. Nearly all of their photographs contained animals, and they understood that zoos helped to keep animals from becoming extinct. Older children's learning definitely revolved around the theme of the zoo.

Photographs and Words of Early Primary Children Who Were 6 to 8 Years Old

As was the case for the oldest children, nearly all (85%, range = 71% to 97%) of the early primary children's photographs contained animals. In one exception, only 53% of one 6-year-old child's photographs contained animals. The early primary children's photographs contained both common and uncommon examples of animals. For example, the photograph of a common snake in Figure 4 was taken by a boy who was 7 years, 9 months old. He had been to the zoo five times before this particular trip.

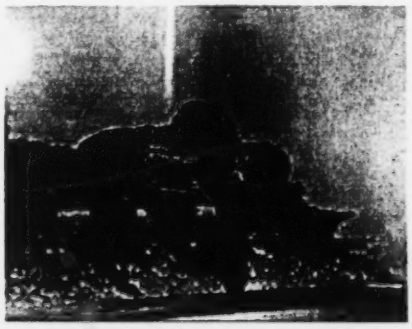

Figure 4. Photograph of a brown snake by 7-year-old.

The boy who took this photograph said, "It's another snake in the reptile house. . . . I took that picture because the snake looked so long. And I thought [my mother] wouldn't believe it." As was evident in this boy's remarks, some children in this age group also

thought about what others would think or would expect to see in their photographs. They often mentioned an unusual feature of what they captured on film.

A girl who was 6 years, 10 months old and had made four previous visits to zoos took a picture of the reindeer at the petting zoo (see Figure 5). She said she took the picture because the reindeer had "fuzzy antlers."

Figure 5. Photograph of a reindeer by 6-year-old.

As was true for the oldest children, the 6- to 8-year-olds also mentioned some unusual feature of the animals they captured in their photographs. It is noteworthy that this child backed up to take the entire animal at the petting zoo. The youngest group of children usually did not do so.

A boy who was 8 years, 11 months of age and had been to the zoo six times took a picture of a bright green snake (see Figure 6). He said he took the picture, "'Cause I like snakes, and that one was neat." When asked what made the snake neat, he replied, "That color and the shed skin."

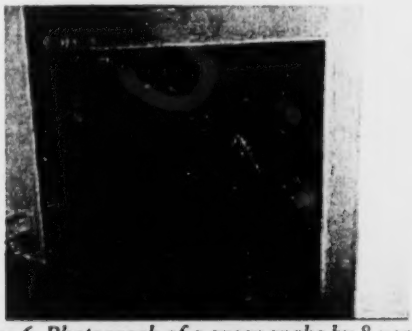

Figure 6. Photograph of a green snake by 8-year-old.

In summary, children who were 6 to 8 years old also took photographs primarily of animals. They captured both common and more unusual examples of animals and usually mentioned what feature of the animal's appearance was uncommon. They thought about what other people would enjoy seeing and noted things they learned at the zoo. As was true for the oldest children, their learning was related to the zoo theme.

Photographs and Words of Preschool Children Who Were 3 to 5 Years Old

With the exception of one 5-year-old girl who had been to the zoo ten times (83% of her photographs contained animals), only 56% of the other preschool children's photographs

contained animals (range = 50% to 59%). Chipmunks and parts of animals (e.g., necks or rear sections of goats) were counted as animals in that percentage. Preschool children treated the camera as a way to get a closer look at something, and they preferred to capture action in their photographs rather than photographing unusual animals or unusual features of animals. For example, a boy age 3 years, 10 months, who had been to the zoo only once before this trip, captured turtles on film (see Figure 7) and said, "There's a turtle." No child older than 9 years took a photograph of turtles in this particular exhibit. When he was asked why he had taken the picture of a turtle, he said, "I wanted to see him swimming in water." His remarks indicated that he could view the action of swimming through the lens of the camera. Preschool children enjoyed common events focused on action and seemed to treat the camera like a set of binoculars for looking at things.

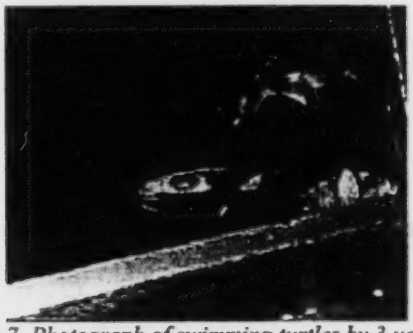

Figure 7. Photograph of swimming turtles by 3-year-old.

The photograph of the turtles swimming was one of the best-quality animal photographs taken by any preschool child. Because many children did not stop when taking photographs, many of their photographs were action shots. It was surprising that the subject could be identified. There was not a significant correlation between age and the number of photographs that could be identified by adults.

A girl who was 5 years, 7 months old and had been to the zoo ten previous times took a picture of goldfish (see Figure 8). When asked why she took that picture, she said, "Because I wanted to see a picture of the goldfish." Perhaps she realized that she would be able to see her pictures after returning from the zoo.

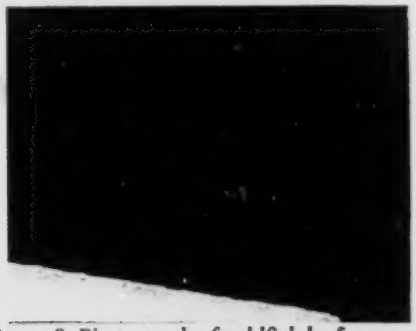

Figure 8. Photograph of goldfish by 5-year-old.

In addition to seeing the animal's actions, the young children's own actions were very important to them. In fact, their pictures at the petting zoo often contained only part of a goat—whichever part they happened to be petting. The child's hand was even visible in some photographs, such as Figure 9, taken by a girl who was 3 years, 5 months of age.

She had been to the zoo once, and she was petting the goat and snapping the picture simultaneously.

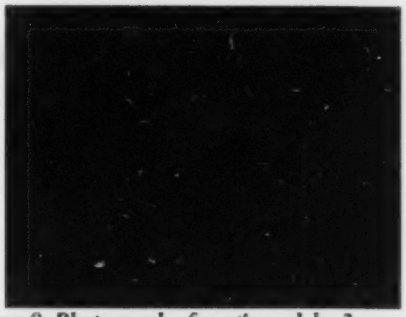

*Figure 9. **Photograph of goat's neck by 3-year-old.***

When asked about the picture, she said only, "Goat." She did not say why she took the picture.

A boy who was 3 years, 2 months old and had been to the zoo on five previous occasions also captured only part of a goat in his picture. He captured the backside of the goat, which was where he was petting it. To these youngest children, petting was important. It was interesting that no preschool children took a photograph of any other animal than a goat at the petting zoo. They were attracted to the animals they already knew. In rural, east central Ohio, many children have goats, so these animals are very familiar to them.

This boy also photographed different goats' necks and heads without their bodies. One of his pictures contained the entire goat, and that goat had its backside toward the camera. When asked to tell about each picture, he said, "Goats." He did not say why he took any of the photographs. He also took three different photographs of his teacher, and he was able to center the camera sufficiently to capture her entire face. He took one photograph of another boy that had the boy's entire face, head, and shoulders in it. Therefore, the reason for photographing only the necks of goats was not simply lack of ability to center the camera.

Preschool children were attracted to large, shiny objects. When we passed the fountain near the entrance, some of the 8- to 10-year-olds took pictures of the swan or geese there. This same preschool boy took a photograph of the big, gold ball on top of the fountain (see Figure 10). He said only, "Fountain."

*Figure 10. **Photograph of gold ball on fountain by 3-year-old.***

Another boy who was 3 years, 10 months old and had been to the zoo once took a picture of the "big ship" sign on top of a building (see Figure 11). He said, "I like the picture."

Figure 11. Photograph of ship sign by 3-year-old.

It is noteworthy that this ship sign was on top of a building we had never entered. The boy was so excited about the sign that he later told me it was like a "big ship" he had "seen before."

A girl who was 3 years, 5 months old and had been to the zoo once took a picture of the clouds (see Figure 12). She did not say anything interpretable about her picture.

Figure 12. Photograph of clouds by 3-year-old.

More than one preschool child took a picture of one girl's pink tennis shoes. The photograph in Figure 13 was taken by a boy who was 4 years, 9 months old and had been to the zoo only once before this trip. He said the name of the girl when asked about that picture.

Figure 13. Photograph of girl's pink tennis shoes by 4-year-old.

Two other children also took pictures of this girl's pink tennis shoes. In fact, every child younger than 5 years took at least one photograph of children's legs while walking. Walking was a significant part of their field trip day.

Preschool children did not confine their photography to taking pictures of zoo animals. They also photographed many common animals you would find when walking in a neighborhood. Whereas older children only photographed animals that are seen at the zoo exclusively, preschool children were more likely to photograph animals they had seen outside of the zoo environment. These were the animals that they were attracted to viewing and photographing, and these were the animals they remembered and described during their interviews later. Seeing a chipmunk was as exciting as seeing an elephant (see Figure 14).

Figure 14. Photograph of a chipmunk by 3-year-old.

The boy who took the photograph of the chipmunk , who was 3 years, 10 months old and had been to the zoo once, said, "That was where we were looking for a chipmunk." Actually, he had been chasing the chipmunk and finally took its picture when it went under the table. Perhaps the boy meant that he was looking for the chipmunk in the camera and finally had it in view.

Common, mundane things in preschool children's environment were important to them. A crack on the sidewalk was a reason for celebration. Their picture taking was certainly not confined to animals. The photograph of the ground (see Figure 15) was taken by a 5-year-old child. He had been to the zoo five times prior to this field trip.

Figure 15. Photograph of the ground by 5-year-old.

This boy said, "This time I took the ground. That's in case you know where the ground was." Although an adult may have labeled this picture "unidentifiable," it was clearly identifiable to this child. This boy took two different photographs of the ground, and another boy age 3 years, 2 months captured a footprint on the ground. He also knew its

identity and said, "A footprint" in his follow-up interview.

To summarize, preschool children photographed common, familiar examples of animals rather than zoo animals that were less familiar. Preschoolers were drawn to action. For example, they photographed petting a goat or moving things. What an adult may have considered mundane (e.g., ground) was interesting to preschool children. Preschool children thought things like the footprints or legs were worthy of being photographed so others could see them.

Age Was a Better Predictor than Experience of the Content of Photographs

A multiple regression analysis was computed on the percentage of photographs that contained animals, with age and number of previous zoo trips (experience) as continuous variables. Age was a significant predictor, t (19) = 3.68, p = .002, of the percentage of photographs children took that contained animals controlling for experience, but experience was not significant controlling for age. Age explained 39% of the variation in the percentages uniquely. Experience did not explain any further variation in percentages. Thus, regardless of how many times they had been to the zoo, older children photographed more animals, and younger children created more scenery or people pictures that did not contain any animals.

What Did Children Say They Learned about the Zoo?

Children were asked, "What was the most important thing you learned about the zoo?" They were prompted with questions such as, "What was the most important thing you learned about zoo animals?" and "Did you learn anything else?" (Appendix D contains the actual zoo interview.) All 21 children's responses to the questions are summarized below so that the reader can assess the meaning children gave to what they thought was the most important thing they learned about the zoo.

The 3-year-olds did not say anything interpretable. The child who was 4 years, 9 months said, "Not to talk to strangers and not to feed the animals and not to pet them because they bite and not to throw rocks at them and not to kick them." He later added, "You can pet the big black thing 'cause it doesn't bite and the red-head bird." When asked more specifically about the most important thing he learned about zoo animals, he said, "Don't let the trucks run over you and not to talk to strangers and all that stuff." This boy clearly learned a lot of precautions, but the theme of the zoo was not evident in what he said he learned.

Two other children who were 5 years old could not articulate what they learned. However, a child who was 5 years, 9 months old said, "Seeing all the animals" was the most important thing she learned. When prompted why, she said, "Because seeing all the animals makes everybody know what all the animals are about." When asked to discuss the most important thing she learned about zoo animals, she said, "We didn't learn anything important."

The four 6-year-old children and one 7-year-old also missed the zoo theme. Three said they did not know what they learned, one said something about animals biting, and one

told about not getting lost at the zoo. Prohibitions related to safety were considered important learning to them. The boy who was 7 years, 9 months old said, "That the zoo is supposed to be a special place. Fun for all." He went on to explain, "'Cause the zoo is supposed to be a place where you have a lot of fun watching the animals." When asked to discuss the most important thing he learned about zoo animals, he said, "That animals are special and deserve our respect." He had been to the zoo five times previously.

The 8-year-old said he learned that the zoo was big and that the animals look neat. The three children who were 9 years old told some fact they learned. The boy age 9 years, 3 months said that the animals were "pretty amusing to watch and see what they do." A girl who was 9 years, 5 months old said, "I learned that water animals have to be under water or they could die. Elephants and giraffes need to be kept in cages. I observed so carefully 'cause I think I might want to be a zoo keeper when I grow up and you gotta take really good care of the animals." Another girl who was 9 years, 6 months old talked about the trolley man, saying that he "has to drive real slow because a couple of the elephants get real mad and they start running around their cages."

The 10- and 11-year-old girls claimed that they learned "how they treat the animals" and "that animals are important." The second girl elaborated, "If you keep killing the animals then there won't be any left." She also said, "That [animals] need care."

The 11-year-old boy probably had the answer that every teacher would have liked every child to say. He said, "Animals are endangered and need help to return to the wild." He elaborated, "Because I think it's very important to save endangered animals. Because we could lose them forever, and it could really destroy the food chain." When asked to discuss the most important thing he learned about zoo animals, he said, "Probably that they've adapted to their new surroundings."

Finally, the 12-year-old talked about the animals' diets and said she learned "they're on special diets. And you can't feed 'em . . . popcorn or peanuts, to the elephants 'cause it'll hurt 'em. . . ." Although she also spoke of prohibitions, as did younger children, she linked prohibitions to reasons: that animals were on special diets.

In summary, most children younger than 6 did not answer the question, and many children younger than 9 stated things you should not do when you go to the zoo. The 8- and 9-year-olds appreciated seeing the animals, and they learned something about animals that they were able to state. The larger, more abstract issues (e.g., preservation of animals) were only evident in the 10- to 12-year-old children's responses.

General Discussion

The photographs and children's own comments about them, and children's reports about what they learned from going to the zoo, all reveal important information about what children of different ages noticed and remembered about this field trip. For the 9- to 12-year-old children, it is evident that going to a distant zoo was an appropriate way to learn about things not ordinarily a part of the children's environment. These children understood the larger purpose of zoos, and they learned new labels and information about each animal's diet, habitat, etc. Not one child mentioned the long bus ride or long periods of walking. If they mentioned prohibitions, it was in the context of what was

best for animals rather than simply in the context of what they were not permitted to do. As would be expected, older children were more peer oriented and displayed greater perspective-taking skills (see Flavell, 1992).

The 6- to 8-year-old children also seemed to benefit from this trip to the zoo. They retained some new information about animals, learned some new labels for animals, and noticed unique features of common animals they knew prior to visiting the zoo. In fact, many were attracted to uncommon examples of animals they had known. They enjoyed watching animals more closely and noticed things they had read in books or had heard previously.

Although these children did not report the more abstract concepts (e.g., the need for protecting and preserving animal species), they learned a great deal that seemed to make this particular trip worthwhile. They probably would benefit from any field trip where they could learn or encounter unusual examples of things they already know.

What the preschool children noticed, photographed, and said about the zoo had little to do with what an adult would consider the actual point of visiting the zoo. What they noticed and remembered was anything they saw that was an example of something they already knew. Whether the event was theme related or not mattered little to them. Taking photographs of the ground, a girl's pink tennis shoes, or the clouds was just as important as taking photographs of turtles, snakes, or goats. Preschool children's animal photographs all focused on common examples of animals. They did not take or notice any unique animals or unusual features of common animals. The ordinary was valued over the extraordinary. Chipmunks and goats are both plentiful in their home environments, and these animals were photographed and were more memorable to them than the unfamiliar reindeers or gorillas.

In developmental research on children's event representations, Farrar and Goodman (1990, 1992) proposed the Schema Confirmation-Deployment Model to explain how young children typically encode events and later report them. Across multiple visits, they exposed children to one or three events that had a common structure and then one deviation event that was very different from the others. Farrar and Goodman claimed that young children (i.e., 4-year-olds in their study) remembered events that were most like the other familiar events they experienced. They did not remember the event that was too different from the ordinary events they experienced. In fact, being exposed to both types of events only once impaired young children's memory for each of these events when compared with a control group of children who only experienced a single event. However, older children (i.e., 7-year-olds in their study) were able to learn and to retain the familiar events more rapidly so that they began to notice and also to remember the unusual event. Perhaps at the zoo, our preschool children were only searching for experiences that were like what they already knew. However, by 6 to 8 years of age, children began to search for and to remember unusual aspects of their experience.

If preschool children are likely to search for and to remember events that are common experiences, what implication might that have for the type of field trips we offer them? It may be just as memorable for children to take a walk around the block as it is to go to far off, unfamiliar places. Our preschool children wanted to see, photograph, and describe things they already knew. These things were what they photographed and remembered. They hardly noticed the unfamiliar, and they were not able to name more

animals after going than they could before going to the zoo. This finding was not surprising given Farrar and Goodman's results.

Lilian Katz (1995) said, "Our major responsibility is to help the young to improve, extend, refine, develop, and deepen their own understandings of constructions of their own worlds" (p. 6). She suggested that the younger the child, the more important it is to offer a curriculum that has horizontal rather than vertical relevance (i.e., curriculum that is useful for the next grade). Curriculum that has horizontal relevance offers children opportunities to know and be able to do things that are, in her words, "applicable and meaningful to them on the same day, on the way home, and in their contemporary lives outside of the educational setting" (p. 112).

The camera seemed to be a way for some preschool children to look more closely at things they would find in their familiar environments. Two preschool children mentioned taking a picture to see something (e.g., the turtles swimming). They treated the camera like binoculars. It would be interesting to give preschool children cameras when they walk around the block to see if their photographs are similar to the ones our children took at the zoo. Though they would not encounter goats to pet, they could see clouds, chipmunks, and the ground. Petting a friendly dog might easily substitute for petting a goat.

The preschool children in the present study took many photographs that captured action, including many photographs of legs walking. Some pictures were taken while the animals were "on the run" (e.g., the chipmunk running under a table). The goat was photo-worthy to preschool children, but the unfamiliar reindeer was not. (Perhaps the reindeer would have become more important at Christmas time.) The action of petting seemed to be more important to them than capturing the entire goat in their photographs. They photographed whichever part of the goat they happened to be petting. The turtle was important because it was swimming.

This finding supports the implications of Piaget's theory for educating children. Piaget proposed that children's cognitive development undergoes four stages. During infancy, children are in the sensorimotor stage, during which they only know what they can act upon. Sometime around their second birthday, children begin to form mental representations, and they enter the preoperational stage. Young children can now use representations as ways to know. Next, children move to the concrete operational stage, during which time children become capable of operational thinking and can master academic skills, but only on what has been experienced previously. Finally, in adolescence, thinking moves to the formal operational stage, during which time children become capable of abstract, hypothetical thinking. According to Berk (2000), in a Piagetian classroom, young children are given lots of opportunities to act upon their world and to explore and to discover for themselves. The younger the child, the more important concrete experiences are. Following this thinking, field trips that involve opportunities for children to touch as well as see, hear, taste, and smell are especially important during the early years. Opportunities to represent the learning by drawings, dramatic play, and other forms of representation would enhance children's learning during the preschool years, and children would not be expected to master abstract concepts before they reached the formal operational stage. Our results confirmed that only the oldest children (i.e., the 10- to 12-year-olds) remembered and stated more abstract concepts about the zoo.

More recently, Piaget's stage concept has been criticized. Young children are more capable than Piaget thought (see Siegler, 1998), and children's thinking is not as consistent across different domains or areas of study as Piaget thought. For example, in solving problems, whether or not the context is a familiar one and how many previous experiences young children have had with similar problems both influence the problem-solving strategies they use in a particular situation. Children reason at higher levels when the context is familiar to them. Siegler (1998) notes that young children's learning can be accelerated. Yet, he also suggests that "although young children can learn to solve . . . problems, they often find doing so exceptionally difficult. Older children who cannot yet solve the same problems typically learn them much more easily" (p. 58). It is evident then that multiple experiences probably would be necessary for young children to learn concepts that are not a part of their normal, everyday experiences. Teachers need to weigh their priorities in deciding what to offer children in the curriculum. If they want children to learn concepts that are outside their normal, everyday world, then repeated experiences and much more time would be necessary.

How many zoo experiences would a preschool child from a rural area need to have to begin to notice and to remember new, unfamiliar animals at the zoo? One of our 5-year-old children had been to the zoo ten times. Although she did photograph more animals than any other preschool child (i.e., whereas only 56% of their photographs contained animals, 83% of her photographs contained animals), it is noteworthy that her photographs had more in common with the other preschool children's than with three of the oldest children's (two 9-year-olds and one 11-year-old) who had been to the zoo only three times. Whereas she photographed turtles, goldfish, a pony, and goats, the older children photographed many new animals (e.g., red pandas) and told what they learned about them. Our preschool child did say that seeing animals was important. How many zoo experiences would it take for her to remember and to report information adults would consider unique about the zoo? Is that an important goal for preschool children? Should we wait until children are older to take them to very unfamiliar places, or was there other learning that was not assessed in the present study?

American educators marvel at the level of thinking reflected in the children's work displayed in Reggio Emilia, Italy. These children have had repeated firsthand experiences exploring a topic actively. Their thinking about the topic is at a higher level than what Piaget would have predicted was possible for young children. Yet, if one carefully reads the documentation from the beginning of projects, one sees the type of fanciful thinking one would expect from preoperational children. It is only through the process of repeated investigations and using many different languages to represent their learning (see Edwards, Gandini, & Forman, 1998) that these children begin to see the world differently and to attain higher levels of thinking about the topic. It also should be noted that topics teachers select are of great interest to the small groups of children who investigate them from the beginning. What photographs would their children choose to take when they went on a field trip to investigate a topic of interest to them?

The present study's thematic unit was undertaken before the director of the center and I attended Lilian Katz and Sylvia Chard's summer institute on the Project Approach. It also occurred before I visited the early childhood programs in Reggio Emilia, Italy, on two occasions, and it was before I visited several programs adapting the Reggio Emilia approach in the United States. In retrospect, this particular thematic unit on the zoo was

superficial when compared with the in-depth studies of topics that our center's children undertook in the years that followed those experiences. Perhaps the way the thematic unit was approached was responsible for the way children viewed the zoo.

Caveats

It is possible that the verbal and nonverbal measures used in the present study did not capture the actual learning of the preschool children. Perhaps children's photographs would not be an adequate representation of what they thought was most important about the field trip to the zoo. There may be other long-term benefits of exposing children to unfamiliar events during the preschool years that were not assessed in the present study. Perhaps the topic—the zoo—was too broad, and narrowing the topic considerably would have enhanced young children's learning.

Despite the above caveats, other observations caused us to wonder whether our preschool children's time would have been better spent going on field trips closer to home. They had spent over 3-1/2 hours in vans traveling to and from the zoo. They walked for what seemed to them to be endless hours. At the end of the day, many children were very tired and slept on the way home.

Although one study cannot definitively answer our question, "Was the learning worth the time, money, and anxiety?" we do need to conduct additional research to shed light on what children in early childhood programs think is important about the field trips we provide for them. After all, 9 hours is a larger part of a 3-year-old's life than it is of an adult's life. We need to make the most of every hour we have with our children and choose the topics of study and field trips with the greatest of care. Viewing children's words and photographs provided only one possible snapshot of children's experience on a field trip to the zoo, but it did raise some important questions to ponder.

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Appendix A

Interview about the Zoo Conducted with All Children

Child's Name:
Date:
Child's Age:
Birthdate:

I would like to see what kids your age think about the zoo.

- Have you been to the
  - Columbus Zoo?
  - Cincinnati Zoo?
  - Cleveland Zoo?
  - Toledo Zoo?
  - National Zoo in Washington, DC?
  - Any other zoo?
  - How many times have you been to a zoo like these all together? 0 1 2 3 4 5 6 7 8 9

- How much do you like the zoo?
  - A lot
  - A little
  - Not Much
  - Not at All

- How much do you know about the zoo?
  - A lot
  - A little
  - Not Much
  - Not at All

- What does Zoo mean to you?
- Tell me about the zoo.
- What happens when you go to the zoo?
  - Does anything else happen?
- What do you see when you go to the zoo?
  - Do you see anything else?
  - What else do you see?
- Is there anything else you would like to tell me about the zoo?
- Tell me as many zoo animals as you can.
  - Can you think of any more zoo animals?

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Appendix B

Parent Questionnaire about Their Child's Experience at the Zoo*

Please return this survey to Peggy Murphy, Center for Child Development, Muskingum College, New Concord, OH 43762-1199.

Child's Name:
Date:
Address:
Age of Child: _____ years old
Birthdate:

- Approximately how many times has your child been to a zoo such as the Columbus Zoo or the Cincinnati Zoo?_____ times
- To the best of your knowledge and memory, please list the ages when your child went to the zoo:
  - The first time my child went to the zoo, he/she was _____ years old.
  - The last time my child went to the zoo, he/she was _____ years old.
  - Other times my child went to the zoo, he/she was _____ years old.
- Rate your child's interest in the zoo by circling one of these:
  - Extremely Interested
  - Very Interested
  - Somewhat Interested
  - A Little Interested
  - Not Interested

- Hates the topic

- Rate your child's knowledge about the zoo by circling one of these:
  - Extremely Knowledgeable
  - Very Knowledgeable
  - Somewhat Knowledgeable
  - A Little Knowledgeable
  - Not Knowledgeable

- Does your child own any books about the zoo at home? Circle one: yes no
  - If so, how many books does he/she own? _____ books about the zoo

- Have you ever checked a book about the zoo out of the library? Circle one: yes no
  - Approximately how many times have you checked out a book about the zoo? _____ times
  - Approximately how many times have you read your child a book about the zoo? _____ times
  - Approximately how many times has your child been to a petting zoo? _____ times

The results of this survey will help Darlene Dreblow to study children's experiences with the zoo. An article about the results of the study will appear in the first issue of the newsletter for the 1993-94 year.

Thank you very much for completing this survey. Have a terrific summer!

*Note: The questionnaire has been formatted for the Web and differs from the one sent to parents.

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Appendix C

Parent Questionnaire about Their Child's Experience with Cameras and Taking Photographs*

Child's Name:
Date:
Age of Child:
Birthdate of Child:

I am trying to determine how much experience children of different ages have with cameras. I am sending this questionnaire to parents of children who are between 3 and 12 years old. This is important information for a research project that I am doing this summer. The information only will be used by me and will only be analyzed in group summary form. Please return this questionnaire to your child's teacher or to: Darlene

DeMarie-Dreblow, Muskingum College, New Concord, OH 43762-1199.

- Does your child own a camera that is his/her own? yes no
  - If yes, what type of camera is it?
  - If yes, at what age did your child receive his/her camera? _____ years old
  - Your child has now had this camera for _____ years

- Has your child ever used the family's or another camera to take pictures? yes no

- How old was your child when he/she took his/her first picture with a camera?
  - _____ years old when took first picture

- Approximately how many pictures has your child ever taken with a camera?
  - _____ total pictures taken by child with a camera in child's lifetime
  - Approximately how many rolls of film does your child take per year? 0 1 2 3 4 5 6 7 8 >8

- How would you rate your child's interest in taking pictures? (circle one)
  - extremely interested
  - very interested
  - fairly interested
  - doesn't know about
  - doesn't care about
  - dislikes

- How would you rate the quality of the pictures your child takes? (circle one)
  - outstanding
  - excellent
  - very good
  - good
  - fair
  - poor

- How many total cameras are there in your household? (circle one) 0 1 2 3 4 5 >5

- Approximately how many rolls of film did members of your household take last year? 0 1 2 3 4 5 6 7 8 9 10 >10

- How would you rate your family's interest in taking pictures? (circle one)
  - extremely interested
  - very interested
  - fairly interested
  - doesn't care about
  - dislikes
  - not as interested as used to be

- How would you rate the quality of the pictures your family takes? (circle one)
  - outstanding
  - excellent
  - very good

- good
- fair
- poor
- none taken

- Do you share all family pictures with your child? (circle one)
  - very often
  - *often*
  - sometimes
  - never
  - didn't have any to share

- Other comments about picture taking:

*Note: The questionnaire has been formatted for the Web and differs from the one sent to parents.

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Appendix D

Interview Questions about Children's Photographs

- Do you remember the day MCCCD went to the zoo? Tell me what you saw the day you went to the zoo.
  - What else did you see the day you went to the zoo?

- What animals did you see?
  - What other animals did you see?

- Remember you had a camera and you got to take pictures? Do you remember what pictures you took?
  - What other pictures did you take?

- What was the most important thing you learned the day you went to the zoo?
  - Why was that the most important thing you learned that day?

- What was the most important thing you learned about the zoo?
  - Why was that the most important thing you learned about the zoo?

- What was the most important thing you learned about zoo animals?
  - Why was that the most important thing you learned about zoo animals?

- How interested were you in taking pictures the day you went to the zoo?
  - Would you say you had a lot of interest, some interest, a little interest, not much interest, or not at all interested?

- Okay. We're going to go through the pictures you took at the zoo. I want you to tell me about each picture. So, we'll start with picture 1. Tell me about this picture.
    - Why did you take this picture?
    - (Continue with same questions for each photograph. Put each photograph on top of previous one.)

- Now I want you to look at all of your pictures. (Spread out photographs.)
    - I want you to tell me, are there any pictures that didn't come out the way you expected them to come out? Why?
    - Anything else? Why? (Etc.)

- Rate the overall quality of your pictures. In other words, how good do you think your pictures are?
    - Are they excellent, very good, good, fair, or poor?

- Which picture best shows what the zoo was like?
    - Why does that picture best show what the zoo was like?

- Do you wish you had taken a picture of anything else?
    - What do you wish you had taken a picture of?
    - Is there anything else you wish you had taken a picture of?

- You get to keep one of the pictures. I will make you a copy of the picture you choose.
    - Which picture would you like to keep?
    - Why did you choose that picture?

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Author Information

Darlene DeMarie is an associate professor of educational psychology at the University of South Florida in Tampa. She was the faculty administrator of Muskingum College's Center for Child Development until 1998 and the co-founder and co-director of the Early Childhood Summer Training Institute (ECSTI) until 1997. She previously taught grade 1, grade 2, and students with learning disabilities in grades 1 to 3 and 7 and 8. Her current research focuses on children's strategies for learning and the methods used to assess the meaning that children attribute to the environment in which they learn.

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